



**BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT**

August 30, 2013

Contra Costa Generating Station, LLC
145 Town & Country Drive, Suite 107
Danville, CA 94526

Attention: Jim McLucas

Application Number 20798
Plant Number: 19771
Equipment Location:
5950 Bridgehead Rd
Oakley, CA 94561

ALAMEDA COUNTY
Tom Bates
Scott Haggerty
Nate Miley
(Vice-Chair)
Tim Sbranti

CONTRA COSTA COUNTY
John Gioia
David Hudson
Mary Piepho
Mark Ross

MARIN COUNTY
Susan Adams

NAPA COUNTY
Brad Wagenknecht

SAN FRANCISCO COUNTY
John Avalos
Edwin M. Lee
Eric Mar

SAN MATEO COUNTY
Carole Groom
(Secretary)
Carol Klatt

SANTA CLARA COUNTY
Ash Kalra
(Chair)
Liz Kniss
Jan Pepper
Ken Yeager

SOLANO COUNTY
James Sperling

SONOMA COUNTY
Teresa Barrett
Shirlee Zane

Jack P. Broadbent
EXECUTIVE
OFFICER/APCO

Dear Mr. McLucas:

SUBJECT: AUTHORITY TO CONSTRUCT RENEWAL

In accordance with Regulation 2-1-407, an Authority to Construct is valid for two years from the date of issuance and may be renewed for an additional two-year term. The Authority to Construct issued to you on June 2, 2011 for the following equipment:

- | | |
|-----|--|
| S-1 | Gas Turbine Generator #1, GE Frame 7FA, Natural Gas-Fired, 213 MW, 2150 MMBtu/hr (HHV) maximum rated capacity with high-efficiency inlet air filter; abated by A-1 Selective Catalytic Reduction System (SCR) and A-2 Oxidation Catalyst |
| S-2 | Gas Turbine Generator #2, GE Frame 7FA, Natural Gas-Fired, 213 MW, 2150 MMBtu/hr (HHV) maximum rated capacity with high-efficiency inlet air filter; abated by A-3 Selective Catalytic Reduction System (SCR) and A-4 Oxidation Catalyst |
| S-3 | Auxiliary Boiler, Natural Gas-Fired, 50.6 MMBtu/hr maximum rated capacity (abated by A-5 Oxidation Catalyst if required) |
| S-4 | Fire Pump Diesel Engine, Clarke JW6H-UFAD80 (or equivalent), 400 hp, 2.78 MMBtu/hr maximum rated heat input |

has been renewed for two additional years. The project complies with current BACT and offset requirements pursuant to District Regulations 2-2-301, 302, and 303. Contra Costa Generating Station, LLC has also paid the requisite fees for the renewal. This Authority to Construct will now expire on June 1, 2015.

Please include your application number with any correspondence with the District. The District's regulations may be viewed online at www.baaqmd.gov. If you have any questions on this matter, please call **Kathleen H Truesdell, Air Quality Engineer II**, at (415) 749-44628.

Very truly yours,



Jim Karas, P.E.
Director of Engineering

CC: Mr. Craig Hoffman, Compliance Manager, California Energy Commission

JK:PJL

Attachment: Permit Condition No. 24963



Definitions:

Hour:	Any continuous 60-minute period
Clock Hour:	Any continuous 60-minute period beginning on the hour
Calendar Day:	Any continuous 24-hour period beginning at 12:00 midnight or 0000 hours
Year:	Any consecutive twelve-month period of time
Rolling 3-hour period:	Any consecutive three-clock hour period, not including start-up or shutdown periods
Heat Input:	All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in BTU/scf
Firing Hours:	Period of time during which fuel is flowing to a unit, measured in hours
MMBtu:	million British thermal units
Gas Turbine Cold Start-up	A gas turbine startup that occurs more than 48 hours after a gas turbine shutdown, and is limited in time to the lesser of (i) the first 90 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or (ii) the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of Parts 15(b) and 15(d)
Gas Turbine Hot/Warm Start-up	A gas turbine startup that occurs within 48 hours of a gas turbine shutdown, and is limited in time to the lesser of (i) the first 30 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or (ii) the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of Parts 15(b) and 15(d)
Gas Turbine Shutdown:	The lesser of the 30-minute period immediately prior to the termination of fuel flow to the Gas Turbine or the period of time from non-compliance with any requirement listed in Parts 15(b) and 15(d) until termination of fuel flow to the Gas Turbine
Gas Turbine Combustor Tuning:	The period of time, not to exceed 8 operating hours per tuning event, in which testing, adjustment, tuning, and calibration operations are performed, as recommended by the gas turbine manufacturer, to ensure safe and reliable steady-state operation, and to minimize NO _x and CO emissions.
Specified PAHs:	The polycyclic aromatic hydrocarbons listed below shall be considered to be Specified PAHs for these permit conditions.



Plant Name: Contra Costa Generating Station, LLC

Condition No. 4963

Plant No. 19771

Application No. 20798

Any emission limits for Specified PAHs refer to the sum of the emissions for all six of the following compounds:

Benzo[a]anthracene
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[a]pyrene
Dibenzo[a,h]anthracene
Indeno[1,2,3-cd]pyrene

Corrected Concentration:	The concentration of any pollutant (generally NO _x , CO, or NH ₃) corrected to a standard stack gas oxygen concentration. For emission points P-1, the exhaust of Gas Turbine (S-1), and P-2, the exhaust of Gas Turbine (S-2), the standard stack gas oxygen concentration is 15% O ₂ by volume on a dry basis. For emission point P-3, the exhaust of Auxiliary Boiler (S-3), the standard stack gas oxygen concentration is 3% O ₂ by volume on a dry basis.
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the OGS construction contractor to ensure safe and reliable steady-state operation of the gas turbines, heat recovery steam generators, steam turbine, and associated electrical delivery systems during the commissioning period
Commissioning Period:	The Commissioning Period shall commence when all mechanical, electrical, and control systems are installed and individual system start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The Commissioning Period for each gas turbine shall terminate when the activities identified in the Commissioning Plan (submitted under Part 4 below) are complete and the gas turbine has reached safe and reliable steady-state operation as demonstrated by compliance with NO _x and CO normal operating limits using the continuous emissions monitors.
Precursor Organic Compounds (POCs):	Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate
CEC CPM:	California Energy Commission Compliance Program Manager
OGS:	Oakley Generating Station
Owner/operator:	The owner/operator of Oakley Generating Station
Total Particulate Matter:	The sum of all filterable and all condensable particulate matter.



GE 7FA Combined-Cycle Gas Turbines

Applicability:

Parts 1 through 9 of this condition shall only apply during the commissioning period as defined above. Unless otherwise indicated, Parts 10 through 30 of this condition shall apply after the commissioning period has ended.

Conditions for the Commissioning Period for GE 7FA Gas Turbines (S-1 and S-2)

1. The owner/operator shall minimize emissions of carbon monoxide and nitrogen oxides from S-1 and S-2 Gas Turbines to the maximum extent possible during the commissioning period. (Basis: BACT, Regulation 2, Rule 2, Section 409)
2. At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall tune the S-1 and S-2 Gas Turbines combustors to minimize the emissions of carbon monoxide and nitrogen oxides. (Basis: BACT, Regulation 2, Rule 2, Section 409)
3. At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall install, adjust, and operate the A-2 and A-4 Oxidation Catalysts and A-1 and A-3 SCR Systems to minimize the emissions of carbon monoxide and nitrogen oxides from S-1 and S-2 Gas Turbines. (Basis: BACT, Regulation 2, Rule 2, Section 409)
4. The owner/operator shall submit a plan to the District Engineering Division and the CEC CPM at least four weeks prior to first firing of S-1 and S-2 Gas Turbines describing the procedures to be followed during the commissioning of the gas turbines. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the Dry-Low-NO_x combustors, the installation and operation of the required emission control systems, the installation, calibration, and testing of the CO and NO_x continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-1 and S-2) without abatement or with partial abatement by their respective oxidation catalysts and/or SCR Systems. The owner/operator shall not fire any of the Gas Turbines (S-1 or S-2) sooner than 28 days after the District receives the commissioning plan. (Basis: Regulation 2, Rule 2, Section 419)
5. During the commissioning period, the owner/operator shall demonstrate compliance with Parts 7, 8, and 9 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters and emission concentrations:
 - firing hours
 - fuel flow rates
 - stack gas nitrogen oxide emission concentrations
 - stack gas carbon monoxide emission concentrations
 - stack gas oxygen concentrations



The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the Gas Turbines (S-1 and S-2). The owner/operator shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each clock hour and each calendar day. The owner/operator shall retain records on site for at least 5 years from the date of entry and make such records available to District personnel upon request. (Basis: Regulation 2, Rule 2, Section 419)

6. The owner/operator shall install, calibrate, and operate the District-approved continuous monitors specified in Part 5 prior to first firing of the Gas Turbines (S-1 and S-2). After first firing of the turbines, the owner/operator shall adjust the detection range of these continuous emission monitors as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The instruments shall operate at all times of operation of S-1 and S-2 including start-up, shutdown, upset, and malfunction, except as allowed by BAAQMD Regulation 1-522, BAAQMD Manual of Procedures, Volume V. If necessary to comply with this requirement, the owner/operator shall install dual-span monitors. The type, specifications, and location of these monitors shall be subject to District review and approval. (Basis: Regulation 2, Rule 2, Section 419)
7. The owner/operator shall not fire S-1 and S-2 Gas Turbine without abatement of nitrogen oxide emissions by the corresponding SCR System A-1 and A-3 and/or abatement of carbon monoxide emissions by the corresponding Oxidation Catalyst A-2 and A-4 for more than a combined total of 831 hours during the commissioning period. Such operation of any Gas Turbine (S-1, S-2) without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and/or oxidation catalyst in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Engineering Division and Compliance and Enforcement Division and the unused balance of the 831 firing hours without abatement shall expire. (Basis: BACT, Regulation 2, Rule 2, Section 409)
8. The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM_{10} , and sulfur dioxide that are emitted by the Gas Turbines (S-1, and S-2) during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in Part 43. (Basis: Regulation 2, Rule 2, Section 409)
9. The owner/ operator shall not operate the Gas Turbines (S-1 and S-2) in a manner such that the pollutant emissions from each gas turbine will exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the Gas Turbines (S-1, S-2). (Basis: BACT, Regulation 2, Rule 2, Section 409)

NO_x (as NO_2)	2,380.8 pounds per calendar day	148.7 pounds per hour
CO	13,303 pounds per calendar day	700 pounds per hour



Conditions for the GE 7FA Combined-Cycle Gas Turbines (S-1 and S-2)

10. The owner/operator shall fire the Gas Turbines (S-1 and S-2) exclusively on PUC regulated natural gas with a maximum sulfur content of 1 grain per 100 standard cubic feet. To demonstrate compliance with this limit, the operator of S-1 and S-2 shall sample and analyze the gas from each supply source at least monthly to determine the sulfur content of the gas. PG&E monthly sulfur data may be used provided that such data can be demonstrated to be representative of the gas delivered to the OGS. (Basis: BACT for SO₂ and PM₁₀)
11. The owner/operator shall not operate the units such that the heat input rate to each Gas Turbine (S-1 and S-2) exceeds 2,150 MMBtu (HHV) per hour. (Basis: BACT for NO_x)
12. The owner/operator shall not operate the units such that the heat input rate to each Gas Turbine (S-1 and S-2) exceeds 51,600 MMBtu (HHV) per day. (Basis: Cumulative Increase for PM₁₀)
13. The owner/operator shall not operate the units such that the combined cumulative heat input rate for the Gas Turbines (S-1 and S-2) exceeds 35,397,277 MMBtu (HHV) per year. (Basis: Offsets)
14. The owner/operator shall ensure that each Gas Turbine (S-1, S-2) is abated by the properly operated and properly maintained Selective Catalytic Reduction (SCR) System A-1 or A-3 and Oxidation Catalyst System A-2 or A-4 whenever fuel is combusted at those sources and the corresponding SCR catalyst bed (A-1 or A-3) has reached minimum operating temperature. (Basis: BACT for NO_x, POC and CO)
15. The owner/operator shall ensure that the Gas Turbines (S-1, S-2) comply with the following limits. The limits in this part do not apply during a gas turbine start-up, combustor tuning operation or shutdown. (Basis: BACT and Regulation 2, Rule 5)
 - a) Nitrogen oxide mass emissions (calculated as NO₂) at each exhaust point P-1 and P-2 (exhaust point for S-1 and S-2 Gas Turbine after abatement by A-1 and A-3 SCR System) shall not exceed 15.52 pounds per hour, averaged over any 1-hour period. (Basis: Cumulative Increase for NO_x)
 - b) The nitrogen oxide emission concentration at each exhaust point P-1 and P-2 shall not exceed 2.0 ppmv, on a dry basis, corrected to 15% O₂, averaged over any 1-hour period. (Basis: BACT for NO_x)
 - c) Carbon monoxide mass emissions at each exhaust point P-1 and P-2 shall not exceed 9.45 pounds per hour, averaged over any 1-hour period. (Basis: Cumulative Increase for CO)
 - d) The carbon monoxide emission concentration at each exhaust point P-1 and P-2 shall not exceed 2.0 ppmv, on a dry basis, corrected to 15% O₂ averaged over any 1-hour period. (Basis: BACT for CO)
 - e) Ammonia (NH₃) emission concentrations at each exhaust point P-1 and P-2 shall not exceed 5 ppmv, on a dry basis, corrected to 15% O₂, averaged over any rolling 3-hour period. This ammonia emission concentration shall be verified by the continuous recording of the ammonia injection rate to each



SCR System A-1 and A-3. The correlation between the gas turbine heat input rates, A-1 and A-3 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-1 and P-2 shall be determined in accordance with Part 24 or a District approved alternative method. The APCO may require the installation on one exhaust point (P-1 or P-2 at the owner/operator's discretion) of a CEM designed to monitor ammonia concentrations if the APCO determines that a commercially available CEM has been proven to be accurate and reliable and that an adequate Quality Assurance/Quality Control protocol for the CEM has been established. The District or another agency must establish a District-approved Quality Assurance/Quality Control protocol prior to the ammonia CEM being a requirement of this part. The APCO shall use the first year of ammonia CEM data to establish the appropriate ammonia emission concentration limit and averaging time for compliance demonstration by CEM. After the APCO has established the ammonia limit, the ammonia CEM shall be used to demonstrate compliance for the gas turbine being monitored by CEM. The gas turbine with the ammonia CEM shall still be subject to the emission testing requirements in Part 24. For the gas turbine with the ammonia CEM, calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate shall be submitted to the District for informational purposes only. (Basis: Regulation 2, Rule 5)

- f) Precursor organic compound (POC) mass emissions (as CH₄) at each exhaust point P-1 and P-2 shall not exceed 2.71 pounds per hour. (Basis: Cumulative Increase for POC)

16. The owner/operator shall ensure that the regulated air pollutant mass emission rates from each of the Gas Turbines (S-1, and S-2) during a start-up or shutdown does not exceed the limits established below. (Basis: BACT Limit for Non-Steady-State Operation)

Pollutant	Hot/Warm Startup (lb/startup)	Maximum Emissions During an Hour Containing a Hot/Warm Startup (lb/hr)	Maximum Emissions Per Cold Startup (lb/startup)	Maximum Emissions During an Hour Containing a Cold Startup (lb/hr)	Maximum Emissions Per Shutdown (lb/shutdown)	Maximum Emissions During an Hour Containing a Shutdown (lb/hr)
NO _x (as NO ₂)	22.3	33.9	96.3	99.9	39.3	46.8
CO	85.2	92.2	360.2	362.4	140.2	144.7
POC (as CH ₄)	31.1	33.1	67.1	67.7	17.1	18.4



17. The owner/operator shall not perform combustor tuning on each Gas Turbine (S-1 or S-2) more than twice in any consecutive 12 month period. Each tuning event shall not exceed 8 hours. Combustor tuning shall only be performed on one gas turbine per day. The owner/operator shall notify the District Engineering Division and Compliance and Enforcement Division no later than 7 days prior to combustor tuning activity, except in exigent circumstances. If exigent circumstances arise, the owner/operator shall notify the District Engineering Division and Compliance and Enforcement Division in writing 24 hours prior to combustor tuning activity detailing the circumstances. The emissions during combustor tuning from each gas turbine shall not exceed the hourly limits established below, and shall not exceed hourly limits established by the District based on emissions data obtained during the first tuning event for each turbine. The owner/operator shall measure and record mass emissions of NO_x and CO using the continuous emission monitors during tuning.

The owner/operator shall measure POC emissions during the first tuning after the first turbine has been commissioned using a District-approved source test method. The owner/operator shall seek District approval of the test method in accordance with Part 29 below. The owner/operator shall submit the record of the NO_x, CO, and POC emissions during the first tuning event after the first turbine has been commissioned to the District within 60 days after the first tuning event. The District shall establish mass emissions limits for the future tuning events based on this test data and shall notify the owner/operator of these limits. (Basis: BACT, Offsets, Cumulative Increase)

Pollutant	Emissions Limit (lb/hr)
NO _x (as NO ₂)	96
CO	360
POC (as CH ₄)	67

18. The owner/operator shall not allow total emissions from each Gas Turbine (S-1 or S-2), including emissions generated during gas turbine start-ups, and shutdowns to exceed the following limits during any calendar day (except for days during which combustor tuning events occur, which are subject to Part 19 below):
- a) 488 pounds of NO_x (as NO₂) per day (Basis: Cumulative Increase)
 - b) 715 pounds of CO per day (Basis: Cumulative Increase)
 - c) 146 pounds of POC (as CH₄) per day (Basis: Cumulative Increase)
19. The owner/operator shall not allow total emissions from each Gas Turbine (S-1 or S-2), including emissions generated during gas turbine start-ups, shutdowns, and combustor tuning events to exceed the following limits during any calendar day on which a tuning event occurs:
- a) 971 pounds of NO_x (as NO₂) per day (Basis: Cumulative Increase)



- b) 2818 pounds of CO per day (Basis: Cumulative Increase)
 - c) 531 pounds of POC (as CH₄) per day (Basis: Cumulative Increase)
20. The owner/operator shall not allow the maximum projected annual toxic air contaminant emissions (per Part 23) from the Gas Turbines (S-1, S-2) combined to exceed the following limits:

Formaldehyde	16,636.1 pounds per year
Benzene	462.9 pounds per year
Specified polycyclic aromatic hydrocarbons (PAHs)	4.54 pounds per year

unless the following requirement is satisfied:

The owner/operator shall perform a health risk assessment to determine the total facility risk using the emission rates determined by source testing and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. The owner/operator shall submit the risk analysis to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and the CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will not result in a significant cancer risk, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (Basis: Regulation 2, Rule 5)

21. The owner/operator shall demonstrate compliance with Parts 11 through 13, 15(a) through 15(d), 16 (NO_x and CO limits), 17 (NO_x and CO limits), 18(a), 18(b), 19(a), 19(b), 43(a) and 43(b) by using properly operated and maintained continuous monitors (during all hours of operation including gas turbine start-up, combustor tuning, and shutdown periods). If necessary to comply with this requirement, the owner/operator shall install dual-span monitors. The owner/operator shall monitor for all of the following parameters and record each parameter at least every 15 minutes (excluding normal calibration periods):

- a) Firing Hours and Fuel Flow Rates for each of the following sources: S-1 and S-2
- b) Oxygen (O₂) concentration, Nitrogen Oxides (NO_x) concentration, and carbon monoxide (CO) concentration at exhaust points P-1 and P-2
- c) Ammonia injection rate at A-1 and A-2 SCR Systems

The owner/operator shall use the parameters measured above and District approved calculation methods to calculate and record the following parameters for each gas turbine (S-1 and S-2):

- d) Corrected NO_x concentration and corrected CO concentration, averaged for each clock hour
- e) Corrected NO_x concentration and corrected CO concentration, averaged for each calendar day



The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate and record the following parameters for each gas turbine (S-1 and S-2) and totaled for S-1 and S-2:

- f) For each rolling three hour period, the heat input rate in MMBtu (HHV) per hour
- g) For each calendar day, the average hourly heat input rate in MMBtu (HHV) per hour and total daily heat input rate in MMBtu (HHV) per day
- h) For each consecutive twelve month period, the total heat input rate in MMBtu (HHV) per year
- i) For each clock hour, the NO_x mass emission rate (as NO₂) and CO mass emissions rate in pounds per hour
- j) For each calendar day, the NO_x mass emission rate (as NO₂) and CO mass emissions rate in pounds per day
- k) For each consecutive 12-month period, the monthly NO_x (as NO₂) and CO mass emissions rates in pounds per month and annual NO_x and CO mass emissions rates in pounds per year and tons per year

(Basis: 1-520.1, 9-9-501, BACT, Offsets, NSPS, Cumulative Increase)

22. To demonstrate compliance with Parts 15(f), 18(c), 19(c), and 43(c) the owner/operator shall calculate and record on a daily basis, the precursor organic compound (POC) mass emissions from each power train. The owner/operator shall use the actual heat input rates measured pursuant to Part 21, actual Gas Turbine start-up times, actual Gas Turbine shutdown times, and CEC and District-approved emission factors developed pursuant to source testing under Part 25 to calculate these emissions. The owner/operator shall present the calculated emissions in the following format:

- a) For each calendar day, POC mass emissions, summarized for each gas turbine and S-1 and S-2 combined
- b) For each consecutive 12-month period, the cumulative total POC mass emissions for each gas turbine and S-1 and S-2 combined.

(Basis: Offsets, Cumulative Increase)

23. To demonstrate compliance with Part 20, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions of: Formaldehyde, Benzene, and Specified PAHs. The owner/operator shall calculate the maximum projected annual emissions using the combined maximum annual heat input rate of 35,397,277 MMBtu/year for S-1 and S-2 combined and the highest emission factor (pounds of pollutant per MMBtu of heat input) determined by the most recent of any source test of the S-1 or S-2 Gas Turbines. If the highest emission factor for a given pollutant occurs during minimum-load turbine operation, a reduced annual heat input rate may be utilized to calculate the maximum projected annual emissions to reflect the reduced heat input rates during gas turbine start-up and minimum-load operation. The reduced annual heat input rate shall be subject to District review and approval. (Basis: Regulation 2, Rule 5)



24. Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of each of the OGS GE 7FA units or as otherwise approved by the APCO, the owner/operator shall conduct a District-approved source test on each corresponding exhaust point P-1 or P-2 to determine the corrected ammonia (NH_3) emission concentration to determine compliance with Part 15(e). The source test shall determine the correlation between the heat input rates of the gas turbine, A-1 or A-3 SCR System ammonia injection rate, and the corresponding NH_3 emission concentration at emission point P-1 or P-2. The source test shall be conducted over the expected operating range of the turbine (including, but not limited to, minimum and full load modes) to establish the range of ammonia injection rates necessary to achieve NO_x emission reductions while maintaining ammonia slip levels. The owner/operator shall repeat the source testing on an annual basis thereafter. Ongoing compliance with Part 15(e) shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: Regulation 2, Rule 5)
25. Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of each of the OGS GE 7FA units or as otherwise approved by the APCO and, at a minimum, on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-1 and P-2 while each Gas Turbine is operating at maximum load to determine compliance with Parts 15(a), 15(b), 15(c), 15(d), 15(f), and to establish the emissions factors to be used to demonstrate compliance with Parts 43(d) and 43(e); and while each Gas Turbine is operating at minimum load to determine compliance with Parts 15(c) and 15(d); and to verify the accuracy of the continuous emission monitors required in Part 21. The owner/operator shall test for (as a minimum each year): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as NO_2), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and PM_{10} emissions including condensable particulate matter. The owner/operator may conduct source tests of individual compounds listed in this part separately. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. The owner/operator may perform up to four tests per year for PM_{10} emissions including condensable particulate matter. (Basis: BACT, Offsets, Cumulative Increase)
26. Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of each OGS GE 7FA units or as otherwise approved by the APCO, the owner/operator shall conduct District- and CEC-approved source tests for that Gas Turbine to determine compliance with the emission limitations specified in Part 16. The source tests shall determine NO_x , CO, and POC emissions during start-up and shutdown of the gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. Thirty working days before the execution of the source tests, the owner/operator shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this Part. The District and the CEC CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed



approved. The owner/operator shall incorporate the District and CEC CPM comments into the test plan. The owner/operator shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of the source testing date. (Basis: Regulation 2, Rule 2, Section 419)

27. Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of the second of the OGS GE 7FA gas turbines or as otherwise approved by the APCO, and on a biennial basis (once every two years) thereafter, the owner/operator shall conduct a District-approved source test on one of the following exhaust points P-1 or P-2 while the Gas Turbine is operating at maximum allowable operating rates to demonstrate compliance with Part 20. The owner/operator shall also test the gas turbine while it is operating at minimum load. If three consecutive biennial source tests demonstrate that the annual emission rates calculated pursuant to Part 23 for any of the compounds are less than 50% of the levels listed in Part 20, then the owner/operator may discontinue future testing for that pollutant. (Basis: Regulation 2, Rule 5)
28. Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of each of the OGS GE 7FA gas turbines or as otherwise approved by the APCO and on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on one of the two exhaust points P-1 or P-2 while the gas turbine is operating at maximum heat input rate to demonstrate compliance with the total sulfuric acid mist emission rate for S-1 and S-2 of 6.3 tons per year. The owner/operator shall test for (as a minimum) SO₂, SO₃, and H₂SO₄, and the sulfur content of the fuel. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: Regulation 2, Rule 5)
29. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section and the CEC CPM prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section and the CEC CPM in writing of the source test protocols and projected test dates at least 7 days prior to the testing date(s). As indicated above, the owner/operator shall measure the contribution of condensable PM (back half) to any measurement of the total particulate matter or PM₁₀ emissions. However, the owner/operator may propose alternative measuring techniques to measure condensable PM such as the use of a dilution tunnel or other appropriate method used to capture semi-volatile organic compounds. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: BACT, Regulation 2, Rule 2, Section 419)
30. The owner/operator shall ensure that the stack height of emission points P-1 and P-2 is each at least 155.5 feet above grade level at the stack base. (Basis: Regulation 2, Rule 5)

Auxiliary Boiler (S-3)



31. The owner/operator shall submit manufacturer's specifications and emissions guarantees for NO_x and CO for the Auxiliary Boiler (S-3) to the District Engineering Division and the CEC CPM at least four weeks prior to first firing of Auxiliary Boiler (S-3). (Basis: Regulation 2, Rule 2, Section 419)
32. If Oxidation Catalyst (A-5) is required, the owner/operator shall install, adjust, and operate the A-5 Oxidation Catalyst at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturers and the construction contractor, to minimize the emissions of carbon monoxide from S-3 Auxiliary Boiler. (Basis: Regulation 2, Rule 2, Section 419)
33. The heat input rate to the Auxiliary Boiler (S-3) shall not exceed 50.6 MMBtu per hour, averaged over any rolling 3-hour period. (Basis: Cumulative Increase)
34. The heat input rate to the Auxiliary Boiler (S-3) shall not exceed 218,606 MMBtu per year. (Basis: Cumulative Increase)
35. The owner/operator of the Auxiliary Boiler (S-3) shall meet all of the requirements listed in below.
 - a) Nitrogen oxide emissions at P-3 (the exhaust point for the Auxiliary Boiler) shall not exceed 9.8 pounds per day, calculated as NO_2 . (Basis: Regulation 2-1-403)
 - b) Carbon monoxide emissions at P-3 shall not exceed 9.8 pounds per day. (Basis: Regulation 2-1-403)
 - c) POC emissions (as CH_4) at P-3 shall not exceed 2.8 pounds per day. (Basis: Regulation 2-1-403)
36. The owner/operator shall demonstrate compliance with Parts 35(a), 35(b) and 43(a) and 43(b) by using properly operated and maintained continuous monitors (during all hours of operation including auxiliary boiler start-up, tuning, and shutdown periods). The owner/operator shall monitor for all of the following parameters and record each parameter at least every 15 minutes (excluding normal calibration periods):
 - a) Firing Hours and Fuel Flow Rates
 - b) Oxygen (O_2) concentration, Nitrogen Oxides (NO_x) concentration, and carbon monoxide (CO) concentration at exhaust point P-3The owner/operator shall use the parameters measured above and District approved calculation methods to calculate and record the following parameters for the Auxiliary Boiler (S-3):
 - c) Corrected NO_x concentration and corrected CO concentration, averaged for each clock hour
 - d) Corrected NO_x concentration and corrected CO concentration, averaged for each calendar day



The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate and record the following parameters for Auxiliary Boiler (S-3):

- e) For each rolling three hour period, the heat input rate in MMBtu (HHV) per hour
- f) For each calendar day, the average hourly heat input rate in MMBtu (HHV) per hour and total daily heat input rate in MMBtu (HHV) per day
- g) For each consecutive twelve month period, the total heat input rate in MMBtu (HHV) per year
- h) For each clock hour, the NO_x mass emission rate (as NO₂) and CO mass emissions rate in pounds per hour
- i) For each calendar day, the NO_x mass emission rate (as NO₂) and CO mass emissions rate in pounds per day
- j) For each consecutive 12-month period, the monthly NO_x (as NO₂) and CO mass emissions rates in pounds per month and annual NO_x (as NO₂) and CO mass emissions rates in pounds per year and tons per year

(Basis: 1-520.1, 9-7-307, BACT, Offsets, Cumulative Increase)

37. To demonstrate compliance with Part 35(c) the owner/operator shall calculate and record on a daily basis, the precursor organic compound (POC) mass emissions from the auxiliary boiler. The owner/operator shall use the actual heat input rates measured pursuant to Part 36, and CEC and District-approved emission factors developed pursuant to source testing under Part 38 to calculate these emissions. The owner/operator shall present the calculated emissions in the following format:

- a) For each calendar day, POC mass emissions, summarized for S-3
- b) For each consecutive 12-month period, the cumulative total POC mass emissions for S-3.

(Basis: Offsets, Cumulative Increase)

38. Within 90 days of start-up of Auxiliary Boiler (S-3), the owner/operator shall conduct a District-approved source test on exhaust point P-3 while the auxiliary boiler is operating at maximum load to determine emission factors for POC, PM₁₀ and SO_x. The owner/operator shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as NO₂), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and PM₁₀ emissions including condensable particulate matter. Thirty working days before the execution of the source tests, the owner/operator shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this Part. The District and the CEC CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and CEC CPM comments into



the test plan. The owner/operator shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of the source testing date. (Basis: Regulation 2, Rule 2, Section 419)

Conditions for the Fire Pump Diesel Engine (S-4)

39. The owner/operator shall fire the Fire Pump Diesel Engine (S-4) exclusively on diesel fuel having a sulfur content no greater than 0.0015% by weight. (Regulation 2, Rule 5, Cumulative Increase, "Stationary Diesel Engine ATCM", CA Code of Regulations, Title 17, Section 93115.5(a))
40. The owner/operator shall operate the Fire Pump Diesel Engine (S-4) for no more than 49 hours per year for the purpose of reliability testing and non-emergency operation. (Regulation 2, Rule 5, Cumulative Increase, "Stationary Diesel Engine ATCM", CA Code of Regulations, Title 17, Section 93115.6(a)(4)(A))
41. The owner/operator shall operate the Fire Pump Diesel Engine (S-4) only when a non-resettable totalizing hour meter (with a minimum display capability of 9,999 hours) is installed, operated and properly maintained. (Basis: BAAQMD Regulation 9-8-530, "Stationary Diesel Engine ATCM", CA Code of Regulations, Title 17, Section 93115.10(e)(1))
42. The owner/operator shall maintain the following monthly records for Fire Pump Engine (S-4) in a District-approved log for at least 5 years.
 - a. Hours of operation for reliability-related activities (maintenance and testing).
 - b. Hours of operation for emission testing to show compliance with emission limits.
 - c. Hours of operation for emergency use.
 - d. For each emergency, the nature of the emergency condition.
 - e. Fuel usage.

Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request. (Basis: BAAQMD Regulation 9-8-530, "Stationary Diesel Engine ATCM", CA Code of Regulations, Title 17, Section 93115.10(g))

Conditions for the Combined-Cycle Gas Turbines (S-1 and S-2), Auxiliary Boiler (S-3), and Fire Pump Engine (S-4)

43. The owner/operator shall not allow total combined emissions from the Gas Turbines (S-1 and S-2), including emissions generated during gas turbine start-ups, combustor tuning, shutdowns, and malfunctions, the auxiliary boiler (S-3), including emissions generated during auxiliary boiler start-ups, tune-ups, shutdowns, and malfunctions, and the fire pump diesel engine (S-4), including non-emergency and emergency operation, to exceed the following limits during any consecutive twelve-month period:



- | | |
|--|------------------------------|
| a) 98.78 tons of NO _x (as NO ₂) | (Basis: Offsets) |
| b) 98.82 tons of CO | (Basis: Cumulative Increase) |
| c) 29.49 tons of POC (as CH ₄) | (Basis: Offsets) |
| d) 63.78 tons of PM ₁₀ | (Basis: Cumulative Increase) |
| e) 12.55 tons of SO ₂ | (Basis: Cumulative Increase) |

Compliance with the limits in this part shall be determined using the following procedures:

Emissions of PM₁₀ and SO₂ from each gas turbine shall be calculated by multiplying turbine fuel usage times an emission factor determined by source testing of the turbine conducted in accordance with Part 25. The emission factor for each turbine shall be based on the average of the emissions rates observed during the 4 most recent source tests on that turbine (or, prior to the completion of 4 source tests on a turbine, on the average of the emission rates observed during all source tests on the turbine).

Emissions of PM₁₀, SO₂, and POC from the auxiliary boiler shall be calculated by multiplying auxiliary boiler fuel usage times an emission factor determined by source testing of the auxiliary boiler conducted in accordance with Part 38.

The owner/operator shall calculate emissions from the fire pump diesel engine from the hours of operation recorded in Part 42 and the following emission factors:

NO_x: 2.62 g/hp-hr

CO: 0.67 g/hp-hr

POC: 0.14 g/hp-hr

PM: 0.119 g/hp-hr

SO_x: 0.004 g/hp-hr

44. To demonstrate compliance with Part 43, the owner/operator shall record the total emissions for each consecutive 12-month period. The owner/operator shall calculate emissions of each pollutant listed in Part 43(a) through (e) from the gas turbines, auxiliary boiler, and fire pump diesel engine for each calendar month using the calculation procedures established in Part 43, and shall calculate annual emissions to determine compliance with the limits listed in Part 43(a) through (e) by summing the monthly totals for the previous 12 months. (Basis: Regulation 2, Rule 2, Section 419)
45. The owner/operator shall submit all reports (including, but not limited to monthly CEM reports, monitor breakdown reports, emission excess reports, equipment breakdown reports, etc.) as required by District Rules or Regulations and in accordance with all procedures and time limits specified in the Rule, Regulation, Manual of Procedures, or Compliance and Enforcement Division Policies & Procedures Manual. (Basis: Regulation 2, Rule 1, Section 403)
46. The owner/operator shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, emission rates, monitor excesses, breakdowns, etc.), source test and



analytical records, natural gas sulfur content analysis results, emission calculation records, records of plant upsets and related incidents. The owner/operator shall make all records and reports available to District and the CEC CPM staff upon request. (Basis: Regulation 2, Rule 1, Section 403, Regulation 2, Rule 6, Section 501)

47. The owner/operator shall notify the District and the CEC CPM of any violations of these permit conditions. Notification shall be submitted in a timely manner, in accordance with all applicable District Rules, Regulations, and the Manual of Procedures. Notwithstanding the notification and reporting requirements given in any District Rule, Regulation, or the Manual of Procedures, the owner/operator shall submit written notification (facsimile is acceptable) to the Compliance and Enforcement Division within 96 hours of the violation of any permit condition. (Basis: Regulation 2, Rule 1, Section 403)
48. The owner/operator shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall comply with the District Manual of Procedures, Volume IV, Source Test Policy and Procedures, and shall be subject to BAAQMD review and approval, except that the facility shall provide four sampling ports that are at least 6 inches in diameter in the same plane of each gas turbine stack (P-1, P-2). (Basis: Regulation 1, Section 501)
49. Within 180 days of the issuance of the Authority to Construct for the OGS, the owner/operator shall contact the BAAQMD Technical Services Division regarding requirements for the continuous emission monitors, sampling ports, platforms, and source tests required by Parts 24 through 28, and 38. The owner/operator shall conduct all source testing and monitoring in accordance with the District approved procedures. (Basis: Regulation 1, Section 501)
50. The owner/operator shall ensure that the OGS complies with the continuous emission monitoring requirements of 40 CFR Part 75. (Basis: Regulation 2, Rule 7)

End of Conditions